

NCI Director's Update

Norman E. Sharpless, M.D.

4th Virtual BSA Meeting

May 12, 2020

@NCIDirector
@TheNCI



People with Cancer & Cancer Survivors

- Vulnerable to poor outcomes from COVID infection
- Cancer care delivery interruptions due to the pandemic



Research Expertise & Capacity

- Decades of leadership in virology
- Intramural and extramural research infrastructure
- Collaborations and convening power



Moral Obligation

- Duty to contribute to address a global public health crisis

NCI COVID-19 Funding Opportunities

www.cancer.gov/coronavirus-researchers

<u>NOT-CA-20-043</u>	Availability of Competitive Revision SBIR/STTR Supplements on Coronavirus Disease 2019 (COVID-19)	Expires 6/26/20
<u>NOT-CA-20-042</u>	Availability of Urgent Competitive Revision and Administrative Supplements on Coronavirus Disease 2019 (COVID-19)	Expires 6/26/20
<u>NOT-CA-20-048</u>	Participation in PA-18-935 "Urgent Competitive Revision to Existing NIH Grants and Cooperative Agreements (Urgent Supplement - Clinical Trial Optional)"	Expires 1/25/22
<u>NOT-CA-20-054</u>	Contributing to the Global COVID-19 Crisis Response by Allowing Some NCI-supported Projects to be Redirected to COVID-19-related Research During the Crisis	

COVID-19 Serology

Cancer Currents: An NCI Cancer Research Blog

NCI Part of Federal Effort to Evaluate Antibody Tests for Novel Coronavirus

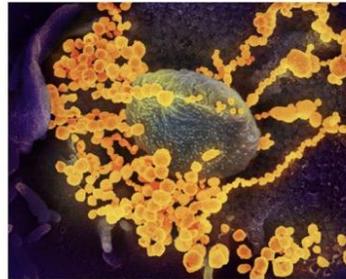
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May 5, 2020, by NCI Staff

As part of a collaboration with the Food and Drug Administration (FDA) and several other government agencies and academic medical centers, NCI is evaluating commercially available antibody tests for SARS-CoV-2, the novel coronavirus that causes COVID-19.

NCI has already assessed several of the tests and has provided the findings to FDA.

While “cancer research and cancer care remain job number one at NCI,” said NCI Director Norman Sharpless, M.D., “NCI has unique research capabilities and capacities. So, to help in this public health crisis, we believe, is a moral obligation.”



SARS-CoV-2 (gold), the virus that causes COVID-19, emerging from the surface of cells cultured in the lab.

Credit: National Institute of Allergy and Infectious Diseases



Coronavirus (COVID-19) Update: Serological Test Validation and Education Efforts

Insight into FDA’s Revised Policy on Antibody Tests: Prioritizing Access and Accuracy



Frederick National Laboratory for Cancer Research

sponsored by the National Cancer Institute

The Frederick National Laboratory for Cancer Research and COVID-19 serology testing

Supplemental funding from Congress

- Enacted April 24th
- \$306M for NCI to **develop, validate, improve, and implement** serological testing and associated technologies
- COVID-19 focused and *distinct* from annual appropriation

134 STAT. 620

PUBLIC LAW 116–139—APR. 24, 2020

Public Law 116–139
116th Congress

An Act

Apr. 24, 2020
[H.R. 266]

Making appropriations for the Department of the Interior, environment, and related agencies for the fiscal year ending September 30, 2019, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Paycheck
Protection
Program and
Health Care
Enhancement
Act.
15 USC 9001
note.

SECTION 1. SHORT TITLE.

This Act may be cited as the “Paycheck Protection Program and Health Care Enhancement Act”.

SEC. 2. TABLE OF CONTENTS.

The table of contents for this Act is as follows:

- Sec. 1. Short title.
- Sec. 2. Table of contents.
- Sec. 3. References.

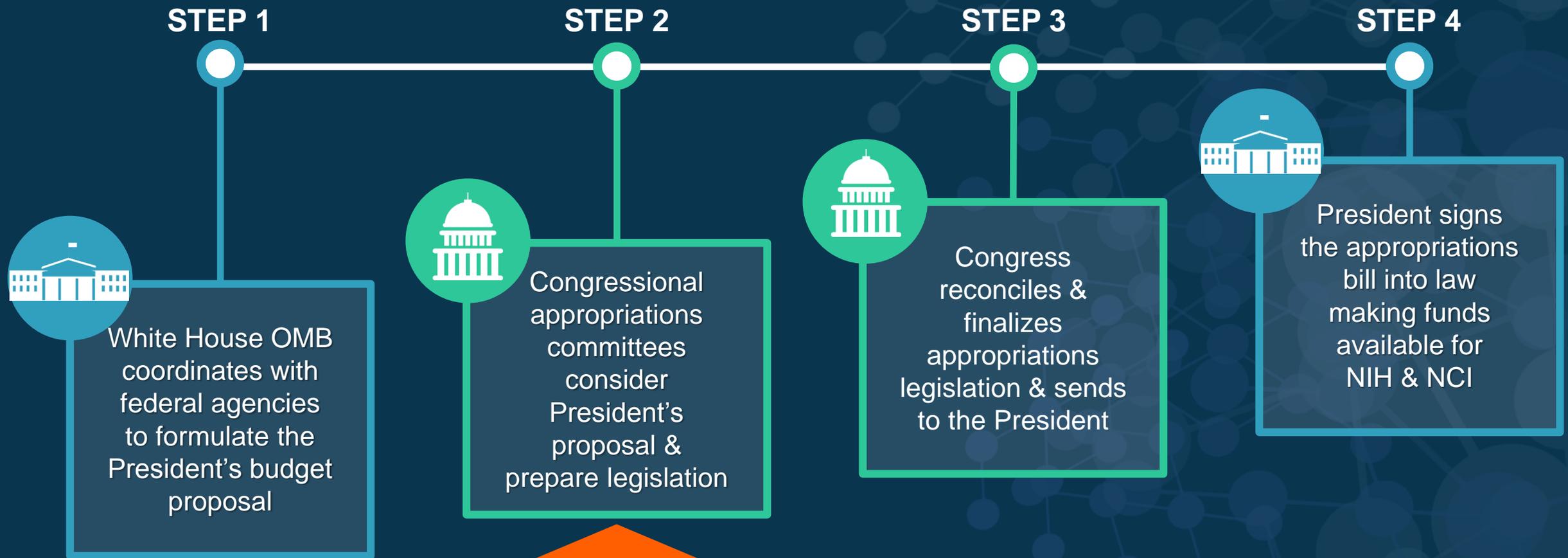
Develop, validate, improve, and implement serological testing and associated technologies

Serology and Immunology Capacity Building

Clinical Serological Sciences

Foundational Serological Sciences

Appropriations Outlook



FY 2021

Leadership Update



Philip E. Castle, Ph.D.
Director, Division of Cancer
Prevention

Childhood Cancer Data Initiative (CCDI) Update

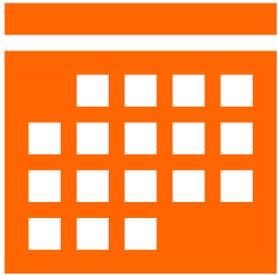
- BSA Working Group met on March 27. Participants' discussion centered on an overarching question:

What is the most critical scientific question that the group should focus on and how does it relate to data sharing?

- Working Group Report to be presented during the next Joint Board Meeting (June 2020)



Cell-based Therapy and Vector Production Biopharmaceutical Development Program



**Accepting
applications starting
Summer 2020**

Will evaluate potential viral production projects proposed by the extramural community

- Development proposals
- Clinical proposals

Cell therapy products

Miltenyi CliniMACS/Prodigy systems

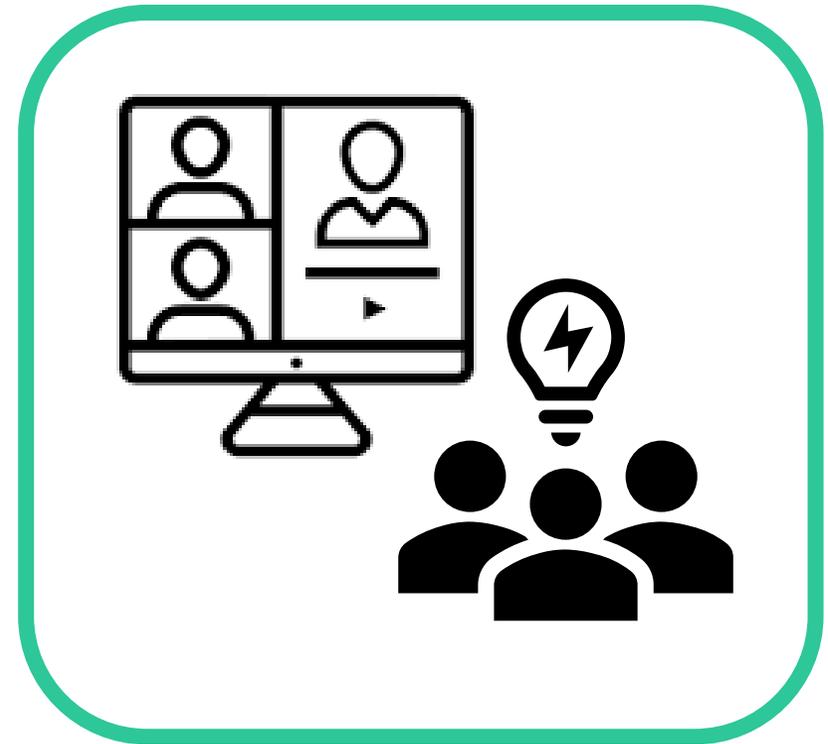
Vector products

- Lentivirus, Retrovirus, CRISPR/Cas9

Prostate Cancer Workshop in Spring 2021

- Increasing number of men over 70 presenting with metastatic lethal prostate cancer
- Flattening mortality rates, despite improvements in treatment, imaging and biopsies

Planning workshop to evaluate the disconnect and develop strategies to address the problem.



Dendrite Cells and Immunotherapies

Cancer Currents: An NCI Cancer Research Blog

Boosting Dendritic Cells Helps the Immune System Find Pancreatic Cancer

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April 28, 2020, by NCI Staff

Cancer Cell

Volume 37, Issue 3, 16 March 2020, Pages 289-307.e9



Article

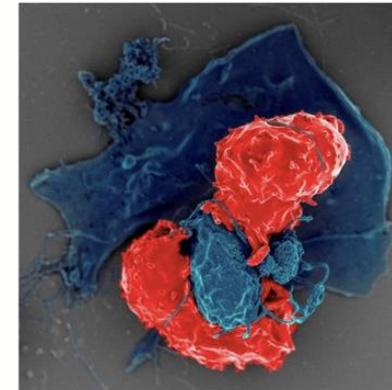
Dendritic Cell Paucity Leads to Dysfunctional Immune Surveillance in Pancreatic Cancer

to why
the immune
system is
unable to
combat
cancer. In
pancreatic
cancer, the
immune
system
often
fails to
destroy
tumor
cells.

the first
line of
defense
of the
body,
dendritic
cells
act as
sentinels.
The
immune
system
relies
on
them to
detect
and
report
on
any
foreign
invaders.

fewer and
less
effective
dendritic
cells
are found
in
pancreatic
cancer
tumors,
which
helps
explain
why
these
tumors
don't
recognize
cancer
cells as
a threat,
they
found.

But treating the mice with drugs that boost the number and



A dendritic cell (blue) showing T cells (red) what antigens to look for. This helps T cells find cancer cells and infected cells.

Credit: National Institute of Allergy and Infectious Diseases

BAI1 prevents Doxorubicin

Cancer Currents: An NCI Cancer Research Blog

Experimental Drug Prevents Doxorubicin from Harming the Heart

nature cancer

Article | Published: 02 March 2020

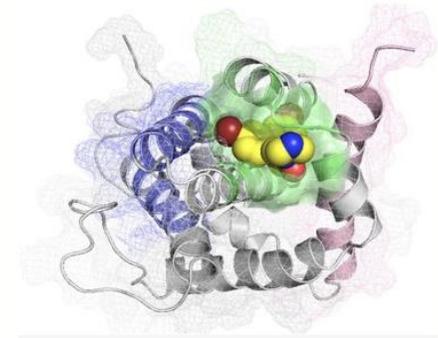
A small-molecule allosteric inhibitor of BAX protects against doxorubicin-induced cardiomyopathy

Dulguun Amgalan, Thomas P. Garner, [...] Richard N. Kitsis 

The drug doxorubicin is used to treat many types of cancer. However, for some patients who receive the drug, it causes heart damage. Using new insights into how doxorubicin damages the heart, researchers have identified a small-molecule drug that may help protect the heart.

A small-molecule experimental drug, called BAI1, prevented doxorubicin-induced heart damage in mice, and did so without affecting doxorubicin's ability to kill cancer cells, as reported in *Nature Cancer* on March 2.

The protein called BAX, which, when activated by doxorubicin, causes the death of heart cells in mice treated with the drug. When activated by doxorubicin, BAX triggers a series of biochemical processes that cause heart cells to undergo apoptosis (cell death). BAI1, the research team found, inhibits BAX and prevents the death of heart cells.



The experimental drug BAI1 (yellow) inhibits the BAX protein using a novel binding site (green) and prevents the death of heart cells.

Credit: Used with permission from Dr. Evripidis Gavathiotis

Gut Health, Stem Cell Transplants and Survival Rates

Cancer Currents: An NCI Cancer Research Blog

Health of Gut Microbes May Affect Survival after Stem Cell Transplant

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March 25, 2020, by NCI Staff

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

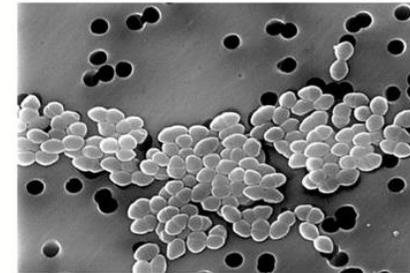
Microbiota as Predictor of Mortality in Allogeneic Hematopoietic-Cell Transplantation

J.U. Peled, A.L.C. Gomes, S.M. Devlin, E.R. Littmann, Y. Taur, A.D. Sung, D. Weber, D. Hashimoto, A.E. Slingerland, J.B. Slingerland, M. Maloy, A.G. Clurman, C.K. Stein-Thoeringer, K.A. Markey, M.D. Docampo, M. Burgos da Silva, N. Khan, A. Gessner, J.A. Messina, K. Romero, M.V. Lew, A. Bush, L. Bohannon, D.G. Breerton, E. Fontana, L.A. Amoretti, R.J. Wright, G.K. Armijo, Y. Shono, M. Sanchez-Escamilla, N. Castillo Flores, A. Alarcon Tomas, R.J. Lin, L. Yáñez San Segundo, G.L. Shah, C. Cho, M. Scordo, I. Politikos, K. Hayasaka, Y. Hasegawa, B. Gyurkocza, D.M. Ponce, J.N. Barker, M.-A. Perales, S.A. Giralt, R.R. Jenq, T. Teshima, N.J. Chao, E. Holler, J.B. Xavier, E.G. Pamer, and M.R.M. van den Brink

trillions of bacteria, viruses, and normal microbiome. These microbes are important for health. Recent studies have shown a role in cancer risk, cancer prevention, and cancer treatments.

the risk of dying after a stem cell transplant. In a new NCI-funded study, researchers found that, in people with blood cancers who received allogeneic hematopoietic stem cell transplant, the health of their gut bacteria was linked with survival. This finding was consistent among patients worldwide.

After stem cell transplant, the blood-forming cells in the bone marrow are destroyed using chemotherapy or radiation therapy. Stem cells



A scanning electron microscope image of a cluster of vancomycin-resistant *Enterococci* sp. bacteria. Credit: Centers for Disease Control and Prevention

cancer.gov/coronavirus-researchers

COVID-19 is

What people with cancer should know: <https://www.cancer.gov/coronavirus>

Guidance for cancer researchers: <https://www.cancer.gov/coronavirus-researchers>

Get the latest public health information from CDC: <https://www.coronavirus.gov/>

Get the latest research information from NIH: <https://www.nih.gov/coronavirus>



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ABOUT CANCER

CANCER TYPES

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GRANTS & TRAINING

NEWS & EVENTS

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search



NCI is the nation's
leader in cancer
research



Discussion